

REMARKS/ARGUMENTS

Claims 5-10 and 12-16 are pending.

Claim Rejections

Claims 5-8, 10 and 12 were rejected as being obvious or anticipated in view of Cote US '593. The Applicants respectfully traverse this rejection.

Claim 5, part (e), requires introducing a first gas into the water in the tank, in bubbles which rise past the membranes to inhibit fouling of the membranes, wherein the first gas consists essentially of a mixture of the second gas and air. In the process in Cote '593, the gas introduced into the tank always includes ozone coming from an ozone supply means. Accordingly, the gas introduced into the tank is not essentially a mixture of a second gas and air. Claim 5 further requires, in part (h), mixing air collected from the atmosphere, in addition to any air in a second gas, with a second gas, the second gas consisting of gases contained in the bubbles after they have risen past the membranes. The Office Action has provided no reference in Cote '593 that provides or teaches this element. The Office Action references column 5, lines 45-60, but this reference merely describes alternate uses of an air compressor. Nothing in this citation states that any air, in addition to any air in the second gas, mixes with the second gas. The Office Action further references Figures 7 and 8. Figures 7 and 8 have a hood 12, but hood 12 is not connected to any other part of the reactor 1. Further, column 9, lines 3-5 states that hood 12 above reactor 1 "enables the recovery and destruction of residual ozone". Accordingly, Figures 7 and 8 do not depict mixing a collected second gas with anything. Claim 1, part (i), further specifies exhausting a portion of the second gas. The Office Action merely states that some portion of the bubbles escape the reactor 1 but provides no support for this proposition. Accordingly, the Office action fails to make a prima facie case in this regard.

For the reasons above, the Applicants submit that claim 5 is neither obvious nor anticipated. Claims 6-8, 10 and 12 are similarly not obvious or anticipated for at least those reasons. Regarding claim 7, however, the Office Action acknowledges that Cote '593 does not specifically teach the claimed limitation. The Office Action merely states that having the second gas be 80% or more of the mixture is a result-effective variable. However, the Office Action fails to establish that the concentration of the second gas in Cote '593 has any effect on a result taught in Cote '593, or how optimizing the process in Cote '593 would lead to the claimed mixture. In contrast, since Cote '593 is concerned with oxidizing waste water, and the second gas would have depleted oxygen and ozone levels, an optimized Cote '593 process would be unlikely to have the second gas be 80% or more of the mixture.

Claims 9 and 13 were rejected as being obvious over Cote '593 in view of Dickerson '254 and Cote '239. The Office Action asserts that Cote '593 teaches all of the limitations of claim 5. However, for at least the reasons above, the Applicants submit that Cote '593 does not teach all of the elements of claim 5. Regarding claim 9, the Office Action further states that it would be obvious to use the superficial velocity of Cote '239. However, the Office Action provides no teaching in either reference making such a combination obvious and so fails to establish a prima facie case. Regarding claim 13, the Office Action refers to the hood 12 of Figure 1. As stated above, Cote '593 explicitly says that hood 12 of Figure 1 is for the destruction, not recirculation, of gases. Further, the reference in the Office Action to column 9, lines 32-37 and the Figure fails to demonstrate or suggest steps of drawing a flow of air from the atmosphere into a vacuum induced flow of a second gas to create a first gas as defined by the claim. Accordingly, the Office Action fails to establish prima facie obviousness of claim 13.

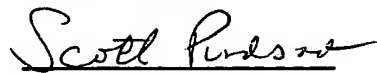
Claims 14-16 were rejected as being obvious over Dickerson '254 in view of Cote '593 and Cote '239. Dickerson '254 does not involve membrane filtration. Column 5, lines 19-24, of Dickerson '254, cited in the Office Action, states that an object

of Dickerson '254 is to recover CO₂ used in a treatment process. But as further explained at column 5, lines 23-34, the treatment process in Dickerson '254 involves adding a gas that is primarily carbon dioxide to a pressurized water stream. The purpose of adding carbon dioxide is to reduce the pH of the water to a level, preferably below pH 4.5, to coagulate proteinaceous materials. Carbon dioxide added in excess of that required for chemical reactions is recovered. The Office Action states that it would be obvious to use the teaching of Cote '593 in the teaching of Dickerson. However, the Office Action fails to describe how such a combination obviously leads to the claimed invention. There is no clear teaching in either Dickerson '254 or Cote '593 as to how the two processes could be combined. For example, there is no clear teaching of how to reconcile the pressurized feed stream of Dickerson '254 with the ambient feed in Cote '593, or the desire to add carbon dioxide from an external source to a feed stream in Dickerson '254 with the desire to supply ozone to a feed stream in Cote. The Office Action further fails to reference any teaching making it obvious to use the superficial velocity of Cote '239 in the teaching of Dickerson. The Office Action merely states that Dickerson does not teach a gas flow rate. This is insufficient, since it still provides no basis for why the air flow rate of Cote '239 would be chosen over any other possible air flow rate, particularly since Cote '239 is not concerned with either ozonation as in Cote '593 or adding carbon dioxide to coagulate proteins as in Dickerson. For these reasons, the Applicants submit that the Office Action fails to establish a prima facie case of obviousness of claim 14. Claims 15 and 16 are similarly not obvious for at least those reasons.

For the reasons above, the Applicants submit that the claims are allowable.

Respectfully submitted,

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